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(57)【要約】

【課題】　ブレード用、エクステンション用をはじめとする人工毛髪用繊維であって、クリンプ加工での形状の付き易さ、三つ編み等の手作業時の扱い易さに優れ、しかも好ましい風合を有する人工毛髪用繊維を提供すること。

【解決手段】　重合体からなる合成繊維であって、断面形状が、長軸の長さＬと短軸の長さＷの比（Ｌ／Ｗ）が７／１～３／１の扁平形状で、かつ長軸が、その１箇所又は２箇所で、９０°好ましくは１２０°を超える角度θで屈曲又は湾曲した断面形状を有し、単糸繊度が３０～７０デニールの人工毛髪用繊維。

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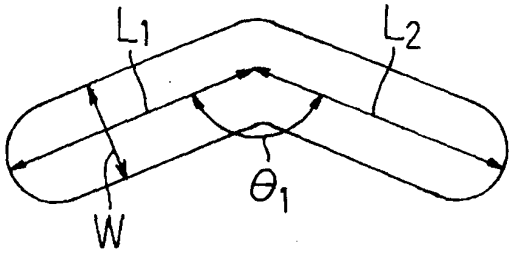
(57) [Abstract]

[Problem]　Being a fiber for artificial hair which begins for braid and one for extension, attachment easiness of geometry in crimping, it is superiorin ease of handling of three knitting or other manual operation time, furthermore offer fiberfor artificial hair which possesses desirable texture.

[Means of Solution]　Being a synthetic fiber which consists of p olymer, cross section shape, length L of the long axis and ratio (L/W) of length W of short axis with flat shape of the7/1 to 3/1, at same time long axis, with 1 site or 2 site, thebending or to have cross section shape which curves with angle　which exceedsthe 90 ° preferably 120 °, single fiber fineness fiber

for artificial hair of 30 to 70 denier.



【特許請求の範囲】

【請求項１】　重合体からなる合成繊維であって、断面形状が、長軸の長さＬと短軸の長さＷの比（Ｌ／Ｗ）が７／１～３／１の範囲内にある扁平形状で、単糸繊度が３０～７０デニールの範囲であることを特徴とする人工毛髪用繊維。

【請求項２】　前記長軸が、９０°を超える角度θで屈曲又は湾曲した断面形状を有する請求項１記載の人工毛髪用繊維。

【請求項３】　前記長軸が、その２箇所で、９０°を超える角度θで屈曲又は湾曲した断面形状を有する請求項１記載の人工毛髪用繊維。

【請求項４】　長軸が、１２０°を超える角度で屈曲又は湾曲した断面形状を有する請求項２又は請求項３に記載の人工毛髪用繊維。

【請求項５】　前記長軸が、１６５°以上、１８０°未満の範囲で屈曲又は湾曲した断面形状を有する請求項２又は請求項３に記載の人工毛髪用繊維。

【請求項６】　前記重合体が、アクリロニトリルを３０重量％以上含有するアクリル系重合体である請求項１～請求項５のいずれかに記載の人工毛髪用繊維。

【請求項７】　前記重合体が、重合度６００～１５００である塩化ビニルの単独重合体、又は塩化ビニルを主体とする共重合体、又は両者の混合物である請求項１～請求項５のいずれかに記載の人工毛髪用繊維。

【請求項８】　前記重合体が、ポリオレフィンである請求項１～請求項５のいずれかに記載の人工毛髪用繊維。

[Claim(s)]

[Claim 1] Being a synthetic fiber which consists of polymer, cross section shape, with flat shapewhere length L of long axis and ratio (L/W) of length W of theshort axis is inside range of 7/1 to 3/1, fiber for artificial hair whichdesignates that single fiber fineness is range of 30 to 70 denier as feature.

[Claim 2] Aforementioned long axis, with angle which exceeds 90 ° thebending or fiber for artificial hair which is stated in Claim 1 whichpossesses cross section shape which curves.

[Claim 3] Aforementioned long axis, with 2 site, with angle which exceedsthe 90 ° bending or fiber for artificial hair which is stated in theClaim 1 which possesses cross section shape which curves.

[Claim 4] Long axis, with angle which exceeds 120 ° bending or thefiber for artificial hair which is stated in Claim 2 or Claim 3 which possesses thecross section shape which curves.

[Claim 5] Aforementioned long axis, in range under 165 ° or greater and 180 ° thebending or fiber for artificial hair which is stated in Claim 2 or Claim 3 whichpossesses cross section shape which curves.

[Claim 6] Aforementioned polymer, fiber for artificial hair which is stated inthe any of Claim 1 to Claim 5 which is a acrylic polymer which acrylonitrile 30 weight % or more iscontained.

[Claim 7] Aforementioned polymer, homopolymer of vinyl chloride which is a degree of polymerization 600 to 1500, thecopolymer , fiber for artificial hair which is stated in any of theClaim 1 to Claim 5 which is or both which designate or thevinyl chloride as main component a blend.

[Claim 8] Aforementioned polymer, fiber for artificial hair which is stated inthe any of Claim 1 to Claim 5 which is a polyolefin.

【請求項９】　前記重合体が、ナイロンである請求項１～請求項５のいずれかに記載の人工毛髪用繊維。

【請求項１０】　前記重合体が、ポリエステルである請求項１～請求項５のいずれかに記載の人工毛髪用繊維。

【請求項１１】　頭髪装飾用である請求項１～請求項１０のいずれかに記載の人工毛髪用繊維。

【請求項１２】　頭髪装飾が、かつら、ヘアピース、ブレード、エクステンションヘアー、又はドールヘアーである請求項１１記載の人工毛髪用繊維。

【請求項１３】　重合体からなる合成繊維からなる繊維束であって、全繊維中に、断面形状が長軸の長さＬと短軸の長さＷの比（Ｌ／Ｗ）が７／１～３／１の範囲内にある扁平形状で、且つ、単糸繊度が３０～７０デニールの範囲である繊維が、全体の繊維本数の９０％以上含まれていることを特徴とする人工毛髪用繊維束。

【請求項１４】　前記長軸が、その１箇所又は２箇所で、１６５°以上、１８０°未満の範囲で屈曲又は湾曲した断面形状を有する繊維が、全体の繊維本数の５０～８０％含まれている請求項１３記載の人工毛髪用繊維束。

【請求項１５】　繊維に捲縮加工を施して繊維束を形成してなることを特徴とする請求項１３又は請求項１４に記載の人工毛髪用繊維束。

【請求項１６】　ブレード、エクステンションヘアー用である請求項１３～請求項１５のいずれかに記載の人工毛髪用繊維束。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、かつら、ヘアピース、ブレード、エクステンションヘアー、ドールヘアー等に用いられる人工毛髪用繊維及び繊維束に関するものである。特に、ブレード、エクステンションヘアーとして用いられた場合には、従来の毛髪用繊維に比べて風合が改善されて、適度な光沢とソフトな感触を有するものである。

【０００２】

【従来の技術】一般に、カツラやヘアピース等の人工毛

[Claim 9] Aforementioned polymer, fiber for artificial hair which is stated inthe any of Claim 1 to Claim 5 which is a nylon.

[Claim 10] Aforementioned polymer, fiber for artificial hair which is stated inthe any of Claim 1 to Claim 5 which is a polyester.

[Claim 11] Fiber for artificial hair which is stated in any of Claim 1 to Claim 10which is a for headhair decoration.

[Claim 12] Headhair decoration, at same time and others, hair piece , braid , the extension hair , fiber for artificial hair which is stated in Claim 11 which is a or ド-jp11 hair.

[Claim 13] Being a fiber bundle which consists of synthetic fiber consisting of polymer, inthe total fiber, cross section shape with flat shape where length L of long axis andthe ratio (L/W) of length W of short axis is inside range of 7/1 to 3/1,the fiber where and single fiber fineness are range of 30 to 70 denier, the90 % or higher of fiber number of entirety fiber bundle for artificial hair whichdesignates that it is included as feature.

[Claim 14] Aforementioned long axis, with 1 site or 2 site, in range underthe 165 ° or greater and 180 ° bending or fiber which possesses thecross section shape which curves, 50 to 80 % of fiber number of entirety fiber bundle forthe artificial hair which is stated in Claim 13 which is included.

[Claim 15] Administering crimping process to fiber, forming fiber bundle, fiber bundle forthe artificial hair which it states in Claim 13 or Claim 14 which designates that itbecomes as feature.

[Claim 16] Fiber bundle for artificial hair which is stated in any of Claim 13 to Claim 15which is a braid and a for extension hair.

[Description of the Invention]

[0001]

[Technological Field of Invention] As for this invention, at same time and others, it is a fiber for theartificial hair which is used for hair piece , braid , extension hair and ド-jp11 hair etc and something regarding fiber bundle. Especially, when it is used, as braid and extension hair texturebeing improved in comparison with fiber for conventional hair, it issomething which possesses suitable luster and soft feel.

[0002]

[Prior Art] Generally, acrylic type synthetic fiber or vinyl chlo

髪用繊維としては、アクリル系合成繊維、或いは塩化ビニル系合成繊維が多く用いられている。従来、人工毛髪用繊維として、実開昭４８－１３２７７号、特公昭５３－６２５３号、実公昭４８－６９４０号、実開昭６３－７８０２６号、特開昭５５－５１８０２号等に開示されたものがある。これらは、人工毛髪用繊維としての風合いを改善するために、その断面形状を工夫したものである。例えば、実開昭４８－１３２７７号のかつら用フィラメントは、まゆ型断面形状における最長部分Ｌ、両端の円形部分の径Ｗ、及び中央部のくびれた部分の幅Ｃの長さを特定の範囲内に限定したものである。特公昭５３－６２５３号の人造毛髪用合成繊維は、繊維横断面における重心を通る最大径（Ｌ）を所定の範囲に限定するとともに、前記最大径（Ｌ）と直交に交わる方向の繊維の横断面における外周と外周との間の最大長さ（Ｗ）と最大径（Ｌ）との比（Ｌ／Ｗ）を１／１～１／５の範囲内に限定したものである。実開昭６３－７８０２６号のウィッグ及びブレード用フィラメントは、断面が略円形若しくは楕円形をなす四本の単位フィラメントが一本の単位フィラメントに対し他の三本の単位フィラメントを等間隔をもって放射状に隣り合った断面Ｙ字形であって、隣接するもの同士の接点が、該単位フィラメントの半径に略等しい幅で接続したものである。又、特開昭５５－５１８０２号のかつら用フィラメントは、少なくとも２個の扁平円を部分的に重ねた断面形状を有し、その短軸の長さＷと長軸の長さＬとの比Ｌ／Ｗ、隣り合う２つの扁平円の中心間の距離Ｃ、更に２つの扁平円の中心間を結ぶ直線と扁平円の長軸のなす角度α等を限定したものである。

ride synthetic fiber is mainly used as カツラand fiber for hair piece or other artificial hair. Until recently, there are some which are disclosed in Japan Unexamined Utility Model Publication Showa 48 - 13277number, Japan Examined Patent Publication Sho 53 - 6253 number, Japan Examined Utility Model Publication Showa 48 - 6940 number, Japan Unexamined Utility Model Publication Showa 63 - 78026 number and the Japan Unexamined Patent Publication Showa 55 - 51802 number etc as fiber for artificial hair. These in order to improve texture as fiber for artificial hair, aresomething which devises cross section shape. for example Japan Unexamined Utility Model Publication Showa 48 - 13277 number and and others as for business filament, thediameter W of round part amount of longest portion L and both ends in eyebrowtype cross section shape, it is something which limits length of width C of theportion where and center are constricted inside specificrange. As for synthetic fiber for artificial hair of Japan Examined Patent Publication Sho 53 - 6253 number, as themaximum diameter (L) which passes by center of gravity in fiber cross-section is limited in specifiedrange, it is something which limits aforementioned maximum diameter (L) and theratio (L/W) of maximum length (W) and maximum diameter (L) with of outer perimeter and outer perimeter inthe cross-section of fiber of direction which mixes to crossing insiderange of 1/1 to 1/5. As for wig of Japan Unexamined Utility Model Publication Showa 63 - 78026 number and filament for braid, fourunit filament where cross section almost forms round or elliptical vis-a-visone unit filament being a cross section Y-shape which is adjacent to radial other threeunit filament with equal spacing, contact point of those which are adjacent,is connected with abbreviation is something which equal width inthe radius of said unit filament. also, Japan Unexamined Patent Publication Showa 55 - 51802 number and and others business filament has cross section shape whichflat circle of at least two partially is repeated, ratio L/W ofthe length W of short axis and length L of long axis, distance C betweenthe center of 2 flat circle which is adjacent, furthermore it issomething which limits straight line which ties between center of 2 flatcircle and angle etc which long axis of flat circle forms.

【０００３】しかし、上記のような従来の人工毛髪用繊維として開発された繊維は、いずれも繊維断面形状の長さや角度が極めて限られた数値で限定された特異な形状を有しており、製造が必ずしも容易でないのに加えて、ブレード用やエクステンションヘアー用として用いた場合に必ずしも好ましい風合を有するものではなく、スタイルの保持やストレート性を重視するあまり、硬い触感の繊維となりがちであった。又、手作業時の扱い易さといった点でも充分ではなかった。

[0003] But, Was developed as description above as fiber for con ventional artificial hair as forthe fiber which, Which possessing unique geometry which is limited with numerical valuewhere length and angle of fiber cross section geometry quite are limited to be, Although production is not easy always, adding, it was not somethingwhich possesses always desirable texture when it uses for braidand as one for extension hair retention of style and remainderwhich seriously considers straight characteristic, it was tend to tobecome fiber of hard feel. It was not a satisfactory even in point such as ease of handling at time ofthe also, manual operation.

【０００４】ところで、扁平繊維は、従来からパイル用途には広く用いられていたが、かつら等の人工毛髪用繊維としては、ヘタリ感等が敬遠され、人工毛髪用繊維としての用途には不向きと考えられていた。

[0004] By way, flat fiber from was used for pile road untilrecently widely, limp feel etc was sidestepped, but at same timeand others as fiber for or other artificial hair, as fiber for artificial hair wasthought that it is unsuitable to application.

【０００５】

【発明が解決しようとする課題】本発明者らは、この扁平繊維について鋭意検討を重ねた結果、所定の扁平率、単糸繊維度を有する扁平繊維であるもの、好ましくは扁平な断面における長軸が所定の角度で屈曲した形状を含むものが、ブレード用、エクステンション用をはじめとする人工毛髪用繊維としての好ましい風合と、クリンプ加工での形状の付き易さや、三つ編み等の手作業時の扱い易さに優れていることを知見し、本発明を完成するに至った。

[0005]

[Problems to be Solved by the Invention] As for these inventors, as for result of repeating diligent investigation concerningthis flat fiber, those which are a flat fiber which possesses specified oblateness and the single fiber fineness. long axis in preferably flat cross section being specified angle, those which include geometrywhich bending is done, as fiber for artificial hair which begins thefor braid and one for extension knowledge it designated attachmenteasiness of geometry with desirable texture and crimping, and that itis superior as ease of handling of three knitting or other manual operation time this inventionreached to completion.

【０００６】

【課題を解決するための手段】即ち本発明は、重合体からなる合成繊維であって、図１に示すような断面形状が長軸の長さＬと短軸の長さＷの比（Ｌ／Ｗ）が７／１～３／１の範囲内にある扁平形状で、単糸繊度が３０～７０デニール（以下、単にｄと略記する。）の範囲であることを特徴とする人工毛髪用繊維である。又、請求項２に係る人工毛髪用繊維は、上記偏平繊維であって、しかも、その長軸が、９０°を超える角度θで屈曲又は湾曲した断面形状を有する繊維である。更に、請求項３に係る人工毛髪用繊維は、前記長軸が、その２箇所で、９０°を超える角度θで屈曲又は湾曲した断面形状を有する繊維である。そして、請求項４に係る人工毛髪用繊維は、上記偏平繊維であって、その長軸が、１２０°を超える角度で屈曲又は湾曲した断面形状を有する繊維である。更に、請求項５に係る人工毛髪用繊維は、前記長軸が、１６５°以上、１８０°未満の範囲で屈曲又は湾曲した断面形状を有するものである。

[0006]

[Means to Solve the Problems] Namely this invention being a synthetic fiber which consists of polymer, kindof cross section shape which it shows in Figure 1 with flat shape where length L ofthe long axis and ratio (L/W) of length W of short axis is inside rangeof 7/1 to 3/1, is fiber for artificial hair which designates that the single fiber fineness is range of 30 to 70 denier (Below , d you briefly describe simply.) as feature. As for fiber for artificial hair which relates to also, Claim 2, being anabove-mentioned flat fiber, furthermore, long axis, bending or is thefiber which possesses cross section shape which curves with angle whichexceeds 90 °. Furthermore, as for fiber for artificial hair which relates to the Claim 3, aforementioned long axis, with 2 site, bending or is thefiber which possesses cross section shape which curves with angle whichexceeds 90 °. And, as for fiber for artificial hair which relates to Claim 4, beingan above-mentioned flat fiber, long axis, bending or is fiber whichpossesses cross section shape which curves with angle which exceeds the120 °. Furthermore, as for fiber for artificial hair which relates to the Claim 5, aforementioned long axis, bending or is something whichpossesses cross section shape which curves in range under 165 ° or greater and the180 °.

【０００７】上記のような本発明に係る偏平繊維を人工毛髪用の繊維束として使用する場合、全繊維中に、断面形状が長軸の長さＬと短軸の長さＷの比（Ｌ／Ｗ）が７／１～３／１の範囲内にある扁平形状で、且つ、単糸繊度が３０～７０デニールの範囲である繊維が、全体の繊維本数の９０％以上含まれていることが好ましい。更に、前記繊維中、断面形状における長軸が、その１箇所又は２箇所で１６５°以上、１８０°未満の範囲で屈曲又は湾曲した断面形状を有する繊維が全体の繊維本数の５

[0007] When as description above flat fiber which relates to this invention youuse, as fiber bundle for artificial hair in total fiber, cross section shape with flat shapewhere length L of long axis and ratio (L/W) of length W of theshort axis is inside range of 7/1 to 3/1, fiber where and the single fiber fineness are range of 30 to 70 denier, 90 % or higher of fiber number of entiretybeing included is desirable. Furthermore, in aforementioned fiber, long axis in cross section shape, withthe 1 site or 2 site bending or fiber which possesses thecross

０～８０％含まれていることが好ましい。

section shape which curves 50 to 80 % of fiber number of entirety being includedis desirable in range under 165 ° or greater and 180 °.

【０００８】そして、前記のような繊維束を人工毛髪用として使用する場合、繊維に捲縮加工を施すことが好ましい。この繊維束は、ブレード、エクステンションヘアー用として好適に用いられる。

[0008] When and, aforementioned way fiber bundle you use, as one forartificial hair it is desirable to administer crimping process to fiber. This fiber bundle is used for ideal as braid and one for extension hair.

【０００９】

[0009]

【発明の実施の態様】以下に本発明を更に詳細に説明する。本発明に係る偏平な繊維のうち、長軸が屈曲又は湾曲した繊維の場合の長軸の長さＬとは、図２に示すような繊維断面における屈曲又は湾曲した長軸の長さＬ１とＬ２の合計の長さ（Ｌ１＋Ｌ２）をいう。従って、前記長軸の長さＬと短軸の長さＷとの比（Ｌ／Ｗ）とは、〔（Ｌ１＋Ｌ２）／Ｗ〕をいう。又、前記のような偏平繊維において、長軸の２箇所で９０°を超える角度θで屈曲又は湾曲した断面形状を有するものにおける長軸の長さＬとは、図３（ａ）、（ｂ）に示すような繊維断面における２箇所で屈曲した長軸の長さＬ１、Ｌ２及びＬ３の合計の長さ（Ｌ１＋Ｌ２＋Ｌ３）をいい、従って、前記長軸の長さＬと短軸の長さＷとの比（Ｌ／Ｗ）とは、〔（Ｌ１＋Ｌ２＋Ｌ３）／Ｗ〕をいう。

[Embodiment of execution of invention] This invention further more is explained in detail below. Among flat fiber which relate to this invention, long axis bending or thelength L of long axis when it is a fiber which curves, bending in thekind of fiber cross section which is shown in Figure 2 or it is length L1 of thelong axis which curves and length (L1 +L2) of total of L2 . Therefore, ratio with length L of aforementioned long axis and thelength W of short axis (L/W) with, (it is (L1 +L2) /W). also, aforementioned way in flat fiber putting, With angle which exceeds 90 ° with 2 site of long axis thebending or in those which possess cross section shape which curves length L ofthe long axis, length L1 of long axis which bending is done, to call length (L1 +L2 +L3) ofthe total of L2 and L3 with 2 site in kind offiber cross section which is shown in Figure 3 (a), (b), therefore, ratio with length L ofthe aforementioned long axis and length W of short axis (L/W) with, (it is (L1 +L2 + L3)/W).

【００１０】前記屈曲した扁平繊維の長軸の長さＬと短軸の長さＷとの比（Ｌ／Ｗ）が７／１を超えて扁平なものでは、繊維の厚みが小さくなりすぎ、断面が裂けやすく、又、腰がなくなりすぎてクタクタになり、クリンプなどの形状の保持性が低下する。一方、長軸の長さＬと短軸の長さＷとの比（Ｌ／Ｗ）が３／１に満たないものでは、繊維の厚みが大きくなり、ソフトな触感が低下し、又、三つ編み等の手作業時の扱い易さのメリットが低下するので好ましくない。

[0010] Ratio (L/W) of length L of long axis of flat fiber which t heaforementioned bending is done and length W of short axis exceeding the7/1, with any flat things, thickness of fiber becomes toosmall, cross section tears to be easy, also, body being gone too much,becomes クタクタ, retention of crimp or other shape decreases. On one hand, with those where ratio (L/W) of length L of long axisand length W of short axis is not full in 3/1, thickness of the fiber to become large, soft feel to decrease, because merit of theease of handling at time of also, three knitting or other manual operation decreases, it isnot desirable.

【００１１】又、長軸の屈曲部の角度θとは、図２に示す繊維断面における前記長軸ＬのＬ１とＬ２の角度のうち内角に相当する角度θ１のことをいう。又、この長軸の２箇所で屈曲した繊維における長軸の屈曲部の角度θとは、図３（ａ）、（ｂ）に示す繊維断面における前記長軸ＬのＬ１とＬ２との角度のうち内角に相当する角度θ１、及びＬ２とＬ３との角度のうち内角に相当する角度θ２のことをいう。そして、この屈曲部の角度θは９０°を超える角度であることが好ましい。この屈曲角度が９０°未満ではソフト感が低下する場合があり、好ましくは１２０°以上、より好ましくは１５０°以上、更に好ましくは１６５°以上である。一方、角度θが１８

[0011] Angle of bending part of also, long axis, it is L1 of t heaforementioned long axis L in fiber cross section which is shown in Figure 2 and thething of angle 1 which is suitable to inside inside angle of angleof L2 . With 2 site of this long axis of also, angle of bending part ofthe long axis in fiber which bending is done, it means thing ofthe angle 2 which is suitable to inside inside angle of angle of theL1 of aforementioned long axis L in fiber cross section which is shown in the Figure 3 (a), (b) and angle 1 , and L2 and L3 which aresuitable to inside inside angle of angle of L2 . And, as for angle of this bending part it is desirable to be a anglewhich exceeds 90 °. This bending angle under 90 ° are times when

０°、即ち直線状であると、繊維表面の金属光沢が増す場合があるため、長軸の屈曲角度θは１６５°以上、１８０°未満の範囲であることが好ましい。尚、長軸における屈曲又は湾曲部の位置は特に限定はなく、適度に光沢を和らげる効果が出る位置で屈曲、又は湾曲していればよいが、長軸の長さの中間位置に近い方がより好ましい。

soft feel decreases, the preferably 120 ° or greater and more preferably 150 ° or greater , furthermore it is a preferably 165 ° or greater. On one hand, when angle is 180 ° namely straight line, becausethere are times when metallic luster of fiber surface increases, as for thebending angle of long axis it is desirable to be a range under 165 ° or greater andthe 180 °. Furthermore as for position of bending or curved part in thelong axis as for especially limitation it is not and if bending and the or it had been supposed to have curved at position where theeffect which alleviates gloss moderately is produced, but onewhich is close to intermediate position of length of long axis is moredesirable.

【００１２】前記のように、繊維断面における長軸が２箇所で屈曲したものとしては、図３（ａ）に示すように、長軸が２箇所で互いに反対方向に屈曲する場合と、図３（ｂ）に示すように同じ方向に屈曲する場合とがあるが、本発明の場合には、特に限定はなく、いずれか一方、若しくは両者の混合でもよい。

[0012] Aforementioned way, long axis in fiber cross section bei ng 2 site, asshown in Figure 3 (a) as bending is done, long axis being 2 site,mutually bending it does in opposite direction when and, as shown in the Figure 3 (b), there are with times when bending it does in samedirection, but in case of this invention, there is not especiallylimitation, is good even with mixture of any one , or both.

【００１３】又、本発明の人工毛髪用繊維における単糸繊度は前記のように３０～７０ｄである。繊度が３０ｄ未満であると柔らかすぎて腰がないばかりか、クリンプ等の形状保持性に劣り、商品価値が低下する。逆に７０ｄを超えて太い場合は断面の長軸の長さが長くなりすぎて、太さ感が不自然となり、又、光沢も強く、ソフトな触感に乏しくなるため、適切な繊度を選択することが必要である。ソフトな触感を重視する意味では３５～５５ｄの範囲がより好ましいが、繊維の素材によって剛性は異なるため、それぞれの素材に最適な繊度が選択されるべきである。

[0013] Single fiber fineness in fiber for artificial hair of also, thi s invention aforementionedway is 30 to 70d. When fineness is under 30d, being too soft, body harbornot to be, being inferior to crimp or other shape retention , commercial value decreases. Exceeding 70d conversely, when it is thick, length of thelong axis of cross section becoming too long, because thickness impressionbecomes unnatural, also also, gloss is strong, becomes scanty in the soft feel, it is necessary to select appropriate fineness. In sense that soft feel is seriously considered range of 35 to 55dis more desirable, but as for stiffness because it differs, it is gooddue to material of fiber for optimum fineness to be selected to therespective material.

【００１４】上記のような屈曲した扁平断面の繊維により人工毛髪用繊維束が作成されるが、その場合、必ずしも繊維束を構成する全ての繊維が屈曲した断面形状を有している必要はなく、断面形状が長軸の長さＬと短軸の長さＷの比（Ｌ／Ｗ）が７／１～３／１の範囲内にある扁平形状で、且つ、単糸繊度が３０～７０ｄの範囲である繊維が、全繊維中に、全体の繊維本数の９０％以上含まれていれば、本発明の目的とするソフトな風合いを付与し、しかもクリンプ加工等の加工性や手作業時の取り扱い性に優れたブレード用やエクステンションヘアー用をはじめとする人工毛髪用繊維束を得ることができる。更に好ましくは、前記長軸の１箇所又は２箇所で、１６５°以上、１８０°未満の範囲で屈曲又は湾曲した断面形状を有する繊維が、全繊維中に、全体の繊維本数の５０～８０％含まれていることである。

[0014] Fiber bundle for artificial hair is drawn up as description above by fiber of oblate cross section which bending is done, but, That when, all fiber which always forms fiber bundle bending necessity to havepossessed cross section shape which is done it to be, cross section shape length L of long axis and ratio (L/W) of length W of theshort axis is inside range of 7/1 to 3/1 with flat shape where, If fiber where and single fiber fineness are range of 30 to 70d isincluded, in total fiber, 90 % or higher of fiber number of entirety, soft texturewhich is made objective of this invention can be granted, furthermore thefiber bundle for artificial hair which begins for braid and one for extension hairwhich are superior in handling property at time of crimping or other fabricability and manual operationcan be acquired. Furthermore with 1 site or 2 site of preferably and theaforementioned long axis, bending or fiber which possesses cross section shapewhich curves, in total fiber, 50 to 80 % of fiber number of entirety is tobe included in range under 165 ° or greater and 180 °.

【００１５】本発明に係る人工毛髪用繊維を構成する重合体として、アクリル系重合体を用いる場合には、繊維の耐熱性の観点から、通常、アクリロニトリルを３０重量%以上含有している重合体が用いられる。又、アクリロニトリルの他にこれと共重合しうるビニル系単量体を用いて共重合してもよい。共重合しうるビニル系単量体としては、塩化ビニル、塩化ビニリデン、臭化ビニル、臭化ビニリデン、アクリル酸エステル、メタクリル酸エステル、アクリルアミド、メタクリルアミド、又はそれらのモノ、又はジアルキル置換体、アクリル酸、メタクリル酸、イタコン酸、スチレンスルホン酸、メタリルスルホン酸、メタクロイルオキシベンゼンスルホン酸、メタクロイルオキシプロピルスルホン酸、又はこれらの金属塩類、及びアンモニウムやアミン塩類、グリシジルアクリレート、グリシジルメタクリレート、アクリルグリシジルエーテル、メタリルグリシジルエーテル等がある。この中でも、塩化ビニル、塩化ビニリデンが好ましい。

[0015] When acrylic polymer is used as polymer which forms fiber for theartificial hair which relates to this invention, from viewpoint of heat resistance of the fiber, it can use polymer which usually, 30 weight % or more contains acrylonitrile. It is possible to copolymerize making use of vinyl monomer which it cancopolymerize with this to other than also, acrylonitrile. It can copolymerize as vinyl monomer which, vinyl chloride , vinylidene chloride , vinyl bromide , vinylidene bromide , acrylic acid ester , methacrylic acid ester , the acrylamide , methacrylamide and or those mono , or dialkyl-substitutedbody, acrylic acid , methacrylic acid , itaconic acid , styrene sulfonic acid , methallyl sulfonic acid , the methacryloyl oxy benzenesulfonic acid , methacryloyl oxypropyl sulfonic acid and or these metal salt, there is a and aammonium and a amine salts , a glycidyl acrylate , a glycidyl methacrylate , a acrylic glycidyl ether and a methallyl glycidyl ether etc. Even among these, vinyl chloride and vinylidene chloride are desirable.

【００１６】上記のような重合体を、有機溶剤、例えばアセトン、アセトニトリル、ジメチルホルムアミド等に溶解させて紡糸原液とする。尚、必要に応じて、耐光性等に効果のある安定剤等を添加してもよい。又、光沢の調整のために種々の添加剤を適量加えても差し支えない。更に、着色繊維とするために、適宜顔料、染料等を使用してもよい。

[0016] As description above melting polymer, in organic solvent , for example acetone , the acetonitrile and dimethylformamide, etc it makes spinning dope. Furthermore it is possible to add stabilizer etc which haseffect in according to need and light resistance etc. suitable amount adding various additive for adjusting also, gloss, it does not becomeinconvenient. Furthermore, in order to make colored fiber, it is possible to use asneeded pigment and dye etc.

【００１７】更に、前記重合体として、重合度６００～１５００である塩化ビニル単体の重合体、又は該重合度で酢酸ビニル等の他の単量体と共重合した塩化ビニルを主体とする共重合体、又は両者の混合物を用いることができる。

[0017] Furthermore, polymer of vinyl chloride unit which is a degree of polymerization 600 to 1500 as theaforementioned polymer, copolymer , or both whichdesignate vinyl acetate or other other monomer and vinyl chloride which is copolymerizedas main component with or said degree of polymerization blend can be used.

【００１８】又、本発明の人工毛髪用繊維は、ポリプロピレン等のポリオレフィン、ナイロン、又はポリエステルから製造することもできる。

[0018] Fiber for artificial hair of also, this invention can also produce, from polypropylene or other polyolefin ,the nylon , or polyester.

【００１９】本発明の繊維を製造するにあたって、紡糸ノズルは、湿式紡糸法の場合には、図４（ａ）～（ｃ）に示すような孔形状のものを使用すれば良く、凝固浴での条件を適宜調整することにより、目的とする屈曲、湾曲を有する断面形状の繊維が得られる。又、乾式や溶融紡糸法の場合には、図５（ａ）～（ｃ）に示すような、扁平で、屈曲又は湾曲した目的とする繊維の断面形状に近い孔形状のものを使用することが好ましい。

[0019] When fiber of this invention is produced, fiber of cross section shape whichpossesses bending and curve which are made objective by factthat spinneret, in case of wet spinning method, if those of kind of hole shapewhich is shown in Figure 4 (a) to (c) are used, is good, adjusts condition withthe coagulation bath appropriately, is acquired. In case of also, dry type and melt spinning method, it seems that is shown in the Figure 5 (a) to (c), with flat, bending or it is desirable to use those ofthe hole shape which is close to cross section shape of fiber which is made theobjective which curves.

【００２０】上記のような本発明に係る人工毛髪用繊維を頭飾用繊維束とする場合には、繊維に捲縮加工を施すことが好ましい。本発明でいう捲縮加工とは、例えば、

[0020] When as description above fiber for artificial hair which relates to thethis invention is designated as fiber bundle for head ornament, it is desirable toadminister crimping process to fiber.

２本の歯車状のロールに繊維を挟んで連続的に波形形状を付与するギアークリンプ方式や、蒸気等で加熱した繊維をスタフィンボックス等に連続的に押し込んで波形形状を付与する方法を指すものである。これらの方法により、目的とする商品に合った波形形状を付与することで、ブレード、エクステンションヘアー等の加工性も向上し、繊維の光沢を適度に調節した繊維束が得られる。

crimping process as it is called in this invention, putting between fiber tothe roll of gear shape of for example 2, pushing in fiber which itheats with gear crimp system and vapor etc which grant waveform geometry to thecontinuous into continuous in ス tough いん box, etc is somethingwhich points to method which grants waveform geometry. With these method , by fact that waveform geometry which is agreeable to theproduct which is made objective is granted, also braid and extension hair or other fabricabilityimprove, fiber bundle which adjusted luster of fiber moderately isacquired.

【００２１】上記のような本発明の人工毛髪用繊維及び繊維束は、かつら、ヘアピース、ブレード、エクステンションヘアー、ドールヘアー等の頭髪装飾用として用いるものであるが、ギアークリンプ等の捲縮加工を施した繊維束は、上記頭飾用繊維束の中でも、特にブレード、エクステンションヘアー等に好適である。

[0021] As description above fiber and fiber bundle for artificial hair of thethis invention are something which it uses at same time and others, as the hair piece , braid , extension hair and one for ド- jp11 hair or other headhair decoration, but fiber bundlewhich administers gear crimp or other crimping process, even in fiber bundle for above-mentionedhead ornament, ideal especially is braid and extension hair etc.

【００２２】

[0022]

【実施例】

[Working Example(s)]

＜実施例１＞アクリルニトリル４９重量%、塩化ビニル５０重量%、スチレンスルホン酸ソーダ１重量%からなる共重合体樹脂をアセトンに溶解して２８．５重量%の紡糸原液を調製した。該原液を楕円型ノズル（長軸幅０．７０mm、短軸幅０．３５mm、孔数５０ケ）を用いて、３０重量%のアセトン水溶液中に湿式紡糸した。得られた繊維は５０℃～６０℃の温水浴中で、２．２倍延伸し、次いで１２０℃で乾燥後、２．８倍の熱延伸を行い、更に１４５℃で緩和熱処理を施した。この繊維の単糸繊度は４.０ｄであり、又、この繊維の断面形状を走査電子顕微鏡を用いて観察したところ、長軸の一箇所で屈曲し、該繊維の平均屈曲角度が１５０°で、且つ長軸の長さＬ（Ｌ１＋Ｌ２）と短軸の長さWとの比（Ｌ／W）＝（４．７／１）である繊維が、全繊維中に、全体の繊維本数の２３%、長軸の２箇所で屈曲し、該繊維の平均屈曲角度が１３１．５°で、且つ長軸の長さＬ（Ｌ１＋Ｌ２＋Ｌ３）と短軸の長さWとの比（Ｌ／W）＝（４．９／１）である繊維が同じく５８%、又、屈曲がなくほぼ扁平で、且つ長軸の長さＬと短軸の長さWとの比（Ｌ／W）＝（５／１）である繊維が同じく１１%、更にランダムに変形した断面の繊維が８%混在していた。

<Working Example 1> Melting copolymer resin which consists of acrylonitrile 49 weight % , vinyl chloride 50 weight % and sodium styrene sulfonate 1 wt%in acetone, it manufactured spinning dope of 28.5 weight %. said starting liquid wet spinning was done in acetone water solution of 30 weight % making use ofthe elliptic nozzle (long axis width 0.70 mm , short axis width 0.35 mm and number of holes 50). , fiber which is acquired 2. 2 times drawing in warm water bathof 50 °C to 60 °C, after drying, did hot drawing of 2. 8 times next with the120 °C, furthermore administered relaxation heat treatment with 145 °C. As for single fiber fineness of this fiber being a 40d, to be, cross section shape of this fiber of also, was observed making use of thescanning electron microscope place, With one site of long axis bending to do, Even bending angle of said fiber 150 ° being, Is a ratio (L/W) =(4.7/1) of length L(L1 +L2) of and long axis and thelength W of short axis fiber which, To in total fiber, 23 % of fiber number of entirety, With 2 site of long axis bending to do, Even bending angle of said fiber being 1 31 .5 °, fiber which is aratio (L/W) =(4. 9/1) of length L(L1 +L2 +L3) of and long axis and length Wof short axis was not a 58 % and a also, bending similarly and almost with theflat, fiber of cross section which fiber which is a ratio (L/W)=(5/1) of length L of and long axis and length W of theshort axis 11 % , furthermore becomes deformed similarly in randomhad existed together 8 %.

【００２３】次に、上記のようにして得られた繊維に、直線距離１００mmの間に山と谷の繰り返し単位で平均１０個、山の高さと谷の深さとの合計が平均で７mmとなるギアークリンプ加工を施し、略波形の繊維束とした

[0023] To next, In fiber which it acquires as description above, between straight line distance 100 mmthe even 10, total of height of crest and depth ofthe valley being even with repeat unit of peaks and valleys, gear crimping whichbecomes 7 mm

後、一般的なブレード商品である５ｇ×３０段の三つ編み商品を作成し、嵩、ソフト感、加工性の３項目について、５段階評価を行った。

was administered, after making fiber bundle of theabbreviation waveform, three knitting product of 5g X 30-stage which is a general braid productwere drawn up, 5-step ranking was done concerning 3 items of bulk ,the soft feel and fabricability.

【００２４】＜比較例１＞アクリルニトリル４９重量%、塩化ビニル５０重量%、スチレンスルホン酸ソーダ１重量%からなる共重合体樹脂をアセトンに溶解して２８．５重量%の紡糸原液を調製した。該原液を楕円型ノズル（長軸幅０．８５mm、短軸幅０．１０mm、孔数５０ケ）を用いて、３０重量%のアセトン水溶液中に湿式紡糸した。得られた繊維は５０℃～６０℃の温水浴中で、２．２倍延伸し、次いで１２０℃で乾燥後、２．８倍の熱延伸を行い、更に１４５℃で緩和熱処理を施した。この繊維の単糸繊度は４０ｄであり、又、この繊維の断面形状を走査電子顕微鏡を用いて観察したところ屈曲が無くほぼ扁平で、且つ長軸の長さＬと短軸の長さＷとの比（Ｌ／Ｗ）＝（１０／１）である繊維が、全繊維中、全体の繊維本数の９５%存在していた。残りの５%は緩やかな角度で湾曲したり、長軸の端部で断面が破断したものである。得られた繊維を実施例１と同様の方法で三つ編み商品を作成し評価したが、繊維の腰がほとんどなく、クタクタの触感であり、光沢も強すぎて、商品性の低いものであった。

[0024] <Comparative Example 1> Melting copolymer resin whi ch consists of acrylonitrile 49 weight %, vinyl chloride 50 weight % and sodium styrene sulfonate 1 wt%in acetone, it manufactured spinning dope of 28.5 weight %. said starting liquid wet spinning was done in acetone water solution of 30 weight % making use ofthe elliptic nozzle (long axis width 0. 85 mm, short axis width 0.1 0 mm and number of holes 50). , fiber which is acquired 2. 2 times drawing in warm water bathof 50 °C to 60 °C, after drying, did hot drawing of 2. 8 times next with the120 °C, furthermore administered relaxation heat treatment with 145 °C. single fiber fineness of this fiber was 40d, when cross section shape of this fiber ofthe also, is observed making use of scanning electron microscope there was not a bendingand almost with flat, fiber which is a ratio (L/W) =(10/1) of thelength L of and long axis and length W of short axis existed,in total fiber, 95 % of fiber number of entirety. Remaining 5 % curves with mild angle, it is something which thecross section breaks with end of long axis. fiber which is acquired it drew up three knitting productwith method which is similar to Working Example 1 and appraised, but therewas not a body of fiber for most part, it was a feel of the クタクタ, also gloss being too strong, it was something where the saleable is low.

【００２５】＜比較例２＞アクリルニトリル４９重量%、塩化ビニル５０重量%、スチレンスルホン酸ソーダ１重量%からなる共重合体樹脂をアセトンに溶解して２８．５重量%の紡糸原液を調製した。該原液を楕円型ノズル（長軸幅０．４２４mm、短軸幅０．２１２mm、孔数７２ケ）を用いて、３０重量%のアセトン水溶液中に湿式紡糸した。得られた繊維は５０℃～６０℃の温水浴中で、１．．４倍延伸し、次いで１２０℃で乾燥後、２．５倍の熱延伸を行い、更に１４５℃で緩和熱処理を施した。この繊維の単糸繊度は３５ｄであり、又、この繊維の断面形状を走査電子顕微鏡を用いて観察したところ、長軸の一箇所で屈曲し、該繊維の平均屈曲角度が１２０°で、且つ長軸の長さＬ（Ｌ１＋Ｌ２）と短軸の長さＷとの比（Ｌ／Ｗ）＝（２．５／１）である繊維が、全繊維中、全体の繊維本数の４５%、長軸の２箇所で屈曲し、該繊維の平均屈曲角度が１２０°で、且つ長軸の長さＬ（Ｌ１＋Ｌ2＋Ｌ３）と短軸の長さＷとの比（Ｌ／Ｗ）＝（２．８／１）である繊維が同じく２７%、又、屈曲がなくほぼ扁平で、且つ長軸の長さＬと短軸の長さＷとの比（Ｌ／Ｗ）＝（２．５／１）である繊維が同じく２１%、更にランダムに変形した断面の繊維が同じく７%混在していた。得られた繊維は実施例１と同様の方法で三つ編み商品を作成し評価したが、光沢は自然であるものの繊維が硬く、ソフトな触感に乏しい商品となった。

[0025] <Comparative Example 2> Melting copolymer resin whi ch consists of acrylonitrile 49 weight %, vinyl chloride 50 weight % and sodium styrene sulfonate 1 wt%in acetone, it manufactured spinning dope of 28.5 weight %. said starting liquid wet spinning was done in acetone water solution of 30 weight % making use ofthe elliptic nozzle (long axis width 0. 424 mm, short axis width 0.212 mm and number of holes 7 2). , fiber which is acquired 1. 4-fold drawing in warm water bathof 50 °C to 60 °C, after drying, did hot drawing of 2. 5 times next with the120 °C, furthermore administered relaxation heat treatment with 145 °C. As for single fiber fineness of this fiber being a 35d, to be, cross section shape of this fiber of also, was observed making use of thescanning electron microscope place, With one site of long axis bending to do, Even bending angle of said fiber 120 ° being, Is a ratio (L/W) =(2.5/1) of length L(L1 + L2) of and long axis and thelength W of short axis fiber which, Inside of total fiber, 45 % of fiber number of entirety, With 2 site of long axis bending to do, Even bending angle of said fiber 120 ° being, fiber which is a ratio (L/W) =(2.8/1) of length L(L1 + L2 + L3) of and thelong axis and length W of short axis was not a 27 % and a also, bending similarlyand almost with flat, fiber of cross section which fiberwhich is a ratio (L/W) =(2.5/1) of length L of and long axis andthe length W of short axis 21 %,

furthermore becomes deformedsimilarly in random had existed together 7 % similarly. fiber which is acquired drew up three knitting productwith method which is similar to Working Example 1 and appraised, but itbecame product where as for gloss fiber of those which are anatural is hard, is lacking in soft feel.

【００２６】＜実施例２＞極限粘度が０．５３のポリエチレンテレフタレートを、溶融押し出し機にて紡糸した。使用ノズルは扁平型（長軸幅０．９８ｍｍ、短軸幅０．２０ｍｍ、孔数２０ケ）を用いた。紡糸温度は２７０～２８５℃で引き取り速度は４００ｍ／ｍｉｎで行った。得られた繊維を引き続き８０℃熱水中にて２倍延伸し、更に８５℃熱水中にて２．５倍延伸し、１４０℃ヒーターロールにて熱処理を施した。この繊維の単糸繊度は３５ｄであり、又、この繊維の断面形状を走査電子顕微鏡を用いて観察したところ、屈曲が無くほぼ扁平で、且つ長軸の長さＬと短軸の長さＷとの比（Ｌ／Ｗ）＝（４．５／１）である繊維が、全繊維中、全体の繊維本数の９８％存在していた。残りの２％は緩やかな角度で湾曲したりしたものである。得られた繊維は実施例１と同様の方法で三つ編み商品を作成し評価した。

[0026] <Working Example 2> Intrinsic viscosity spinning did polyethylene terephthalate of 0.53, with melt extruder. Use nozzle used flat type (long axis width 0.98 mm, short axis width 0.20 mm and number of holes 20). spinning temperature with 270 to 285 °C did take-up speed with 400 m/min. fiber which is acquired continuing and 2 times drawingin 80 °C hot water, furthermore 2. 5 times drawing in 85 °C hot water, itadministered heat treatment with 140 °C heater roll. single fiber fineness of this fiber was 35d, when cross section shape of this fiber ofthe also, is observed making use of scanning electron microscope, there was not a bendingand almost with flat, fiber which is a ratio (L/W) =(4. 5/1) of thelength L of and long axis and length W of short axis existed,in total fiber, 98 % of fiber number of entirety. Remaining 2 % is something which curves with mild angle. fiber which is acquired drew up three knitting productwith method which is similar to Working Example 1 and appraised.

【００２７】＜実施例３＞重合度が１２００であるポリ塩化ビニル樹脂をＮ，Ｎ－ジメチルホルムアミドに溶解して２０重量％の紡糸原液を調製した。該原液を扁平型ノズル（長軸幅０．８５ｍｍ、短軸幅０．１５ｍｍ、孔数５０ケ）を用いて、６０重量％のＮ，Ｎ－ジメチルホルムアミド水溶液中に湿式紡糸した。得られた繊維は５０重量％のＮ，Ｎ－ジメチルホルムアミド水溶液中で２倍延伸し、５０℃以上の温水で水洗した後、１２０℃で乾燥後、２倍の延伸を行ない、更に１３５℃で緩和熱処理を施した。この繊維の単糸繊度は４５ｄであり、又、この繊維の断面形状を走査電子顕微鏡を用いて観察したところ、長軸の一箇所で屈曲し、該繊維の平均屈曲角度が１７０°で、且つ長軸の長さＬ（Ｌ１＋Ｌ２）と短軸の長さＷとの比（Ｌ／Ｗ）＝（５．５／１）である繊維が、全繊維中、全体の繊維本数の７５％、又、屈曲がなくほぼ扁平で、且つ長軸の長さＬと短軸の長さＷとの比（Ｌ／Ｗ）＝６／１である繊維が同じく２５％であった。又、前記長軸の一ケ所で屈曲したもののうち、その屈曲角度が１６５°以上１８０°未満の断面形状のものの本数が同じく７１％であった。

[0027] <Working Example 3> Melting polyvinyl chloride resin where degree of polymerization is 1200 in N,N-dimethylformamide, itmanufactured spinning dope of 20 weight %. said starting liquid wet spinning was done in N,N-dimethylformamide aqueous solution of 60 weight % making use ofthe flat type nozzle (long axis width 0.85 mm, short axis width 0.1 5 mm and number of holes 50). , fiber which is acquired 2 times drawing in N,N-dimethylformamide aqueous solutionof 50 weight %, with warm water of 50 °C or higher water wash after doing, afterdrying, did drawing of 2 times with 120 °C, furthermoreadministered relaxation heat treatment with 135 °C. As for single fiber fineness of this fiber being a 45d, to be, cross section shape of this fiber of also, was observed making use of thescanning electron microscope place, bending it does with one site of long axis, fiber where theeven bending angle of said fiber is 170 °, is ratio (L/W) =(5.5/1) of thelength L(L1 +L2) of and long axis and length W of short axis, in the total fiber, 75 % of fiber number of entirety, was not a also, bending and almostwith flat, fiber which is a ratio (L/W) =6/1 of length L ofthe and long axis and length W of short axis was 25 %similarly. Among those which bending are done, bending angle number of those ofthe cross section shape under 165 ° or greater 180 ° was 71 % similarly with one place ofthe also, aforementioned long axis.

【００２８】＜実施例４＞ＭＩ（ＪＩＳ　Ｋ７２１０によるメルトインデックス）＝１０ｇ／１０ｍｉｎのポリプロピレンを、溶融押し出し機にて扁平型ノズル（長軸

[0028] <Working Example 4> Polypropylene of MI (It depends on JIS K7210 melt index) =10 g/10 min, with melt extruder melt spinning was done tothe spinning tube through

幅０．６ｍｍ、短軸幅０．２ｍｍ、孔数２０ケ）を通して、紡糸筒へ溶融紡糸した。紡糸温度は２４０～２６５℃で引き取り速度は２００ｍ／ｍｉｎであった。これを更に４倍延伸して得られた繊維は、断面がやや変形して長軸の１箇所で屈曲し、平均屈曲角度が１７２°で、且つ長軸の長さＬ（Ｌ１＋Ｌ２）と短軸の長さＷとの比（Ｌ／Ｗ）＝（４．２／１）である繊維が、全繊維中、全体の繊維本数の７０％、又、屈曲がなくほぼ扁平で、且つ長軸の長さＬと短軸の長さＷとの比（Ｌ／Ｗ）＝（４．６／１）である繊維が同じく３０％であった。この繊維の単糸繊度は３５ｄであった。

flat type nozzle (long axis width 0.6 mm, short axis width 0.2 mm and number of holes 20). As for spinning temperature as for take-up speed it was a 200 m/min with 240 to 265 ℃. Furthermore 4-fold drawing this, it acquires as for fiber which, cross section becoming deformed a little, with 1 site of long axis thebending to do, Even bending angle being 172 °, fiber which is a ratio (L/W) =(4.2/1) ofthe length L(L1 +L2) of and long axis and length W of short axis, inthe total fiber, 70 % of fiber number of entirety, was not a also, bending andalmost with flat, fiber which is a ratio (L/W) =(4.6/1) of thelength L of and long axis and length W of short axis was the30 % similarly. single fiber fineness of this fiber was 35d.

【００２９】以上の実施例１～４、及び比較例１、２の結果を下記の表１に示す。

[0029] Working Example 1 to 4 above, result of and Comparative Example 1, 2 is shown in thebelow-mentioned Table 1.

【００３０】

[0030]

【表１】

[Table 1]

表１

	単糸繊度	扁平比（Ｌ／Ｗ）（平均）	断面形状	ブレード評価			
				嵩	ソフト感	加工性	総合
実施例１	４０ｄ	4.7/1 ～ 5.0/1	１～２箇所屈曲	3	5	5	5
比較例１	４０ｄ	10／１	屈曲無し	2	3	3	3
比較例２	３５ｄ	2.5/1 ～ 2.8/1	１～２箇所屈曲	3	2	3	3
実施例２	３５ｄ	4.5／１	屈曲無し	3	5	5	5
実施例３	４５ｄ	5.6／１	１箇所屈曲	2	5	5	5
実施例４	３５ｄ	4.3／１	１箇所屈曲	4	4	4	4

【００３１】

注）評価方法及び評価基準

（嵩）

方法＝外観による。

基準＝５：非常に優れる。

４：優れる。

３：普通。

２：やや劣る。

１：劣る。

（ソフト感）

方法＝官能テストによる。

基準＝５：ソフト感非常に良好。

４：ソフト感良好。

３：特徴無し。

２：ややソフト過ぎる、又はやや硬過ぎる。

１：柔らかすぎ（腰が無い）、又は硬過ぎ。

（加工性）

方法＝三つ編みの官能評価による。

基準＝５：非常に優れる。

４：優れる。

３：普通。

２：やや劣る。

１：劣る。

（総合）

基準＝５：非常に優れる。

４：優れる。

３：普通。

２：やや劣る。

１：劣る。

[0031]

【００３２】

【発明の効果】上記のように、本発明に係る人工毛髪用繊維は、特定の断面形状を有しており、ブレード用、エクステンション・ヘアー用をはじめとする人工毛髪用繊維としての好ましい風合と、クリンプ加工等の加工性や、手作業時の扱い易さに優れたものである。

【００３３】更に、これらの繊維にギアークリンプ等の捲縮加工を施した繊維束を用いることにより、嵩高性に優れたブレード、エクステンションヘアー用等の頭飾用商品を得ることができる。

【図面の簡単な説明】

[0032]

[Effects of the Invention] As description above, as fiber for artificial hair where fiber forthe artificial hair which relates to this invention has had specific cross section shape,begins for braid and one for extension * hair it is something which issuperior in ease of handling at time of desirable texture and crimping or other fabricability and manual operation.

[0033] Furthermore, braid and product for or other head ornament of the extension hair which are superior in bulk by using fiber bundle whichadministers gear crimp or other crimping process to these fiber, can be acquired.

[Brief Explanation of the Drawing(s)]

【図１】　本発明に係る人工毛髪用繊維の断面説明図であり、長軸の屈曲がほとんどない例を示すものである。

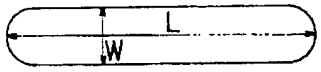
【図２】　本発明に係る人工毛髪用繊維の断面説明図であり、長軸が１箇所で屈曲した繊維の例を示す。

【図３】　（ａ）、（ｂ）共に、本発明に係る人工毛髪用繊維の断面説明図であり、（ａ）は長軸が２箇所で互いに反対方向へ屈曲した例を示すものであり、（ｂ）は長軸が２箇所で同じ方向へ屈曲した例を示すものである。

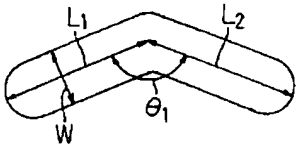
【図４】　本発明に係る人工毛髪用繊維を製造するための紡糸ノズルの孔形状を示す概略図であり、（ａ）～（ｃ）はいずれも湿式紡糸法で用いるものの例を示したものである。

【図５】　本発明に係る人工毛髪用繊維を製造するための紡糸ノズルの孔形状を示す概略図であり、（ａ）～（ｃ）はいずれも溶融紡糸法で用いるものの例を示したものである。

【図１】



【図２】



[Figure 1] It is a cross section explanatory diagram of fiber for artificial hair which relates to this invention,it is something which shows example which for most part doesnot have bending of long axis.

[Figure 2] It is a cross section explanatory diagram of fiber for artificial hair which relates to this invention,the long axis is 1 site and example of fiber which bending isdone is shown.

[Figure 3] (A) (b) Together, it is a cross section explanatory di agram of fiber for artificial hair which relates tothe this invention, (a) long axis being 2 site, mutually is somethingwhich shows example which bending is done to opposite direction, (b)the long axis being 2 site, is something which shows example whichthe bending is done to same direction.

[Figure 4] It is a conceptual diagram which shows hole shape of spinneret in order to producethe fiber for artificial hair which relates to this invention, (a) to (c) issomething which shows example of those which in each case are usedwith wet spinning method.

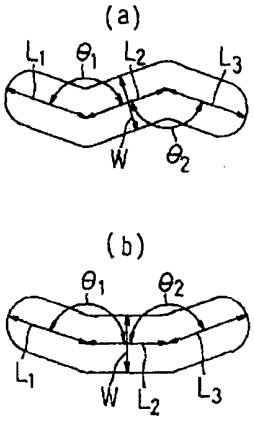
[Figure 5] It is a conceptual diagram which shows hole shape of spinneret in order to producethe fiber for artificial hair which relates to this invention, (a) to (c) issomething which shows example of those which in each case are usedwith melt spinning method.

[Figure 1]

[Figure 2]

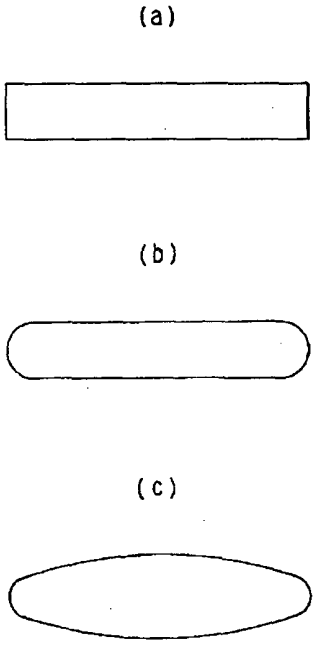
【図３】

[Figure 3]



【図４】

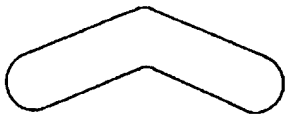
[Figure 4]



【図５】

[Figure 5]

(a)



(b)

(c)